

- 15 -

CLAIMS:

1. A Hall effect switch comprising:

a switch housing;

5 a Hall effect sensor positioned inside said switch housing; and

a magnet carriage positioned inside said switch housing, said magnet carriage movable relative to said Hall effect sensor and including a first magnet and a second magnet, said first magnet and said second magnet positioned facing said Hall effect sensor and in contact with each other,

10 said Hall effect sensor responsive to the positional displacement of said first and second magnets relative to said Hall effect sensor.

2. The Hall effect switch of claim 1 further comprising a boot seal between said switch housing and said magnet carriage.

15

3. The Hall effect switch of claim 1 further comprising a return spring for biasing the positional displacement of said magnet carriage.

4. The Hall effect switch of claim 1 further comprising a clicker ball and a  
20 clicker ball aperture, said clicker ball being displaced from a non-actuated position to an

- 16 -

actuated position by the positional displacement of said magnet carriage and thereby emitting a perceivable clicking indication.

5           5.       The Hall effect switch of claim 1 wherein said first and second magnets are positioned with opposite polarities facing said Hall effect sensor.

6.       The Hall effect switch of claim 1 further comprising at least one additional magnet in said magnet carriage positioned similarly to said first and second magnets.

10           7.       A Hall effect switch comprising:  
a switch housing;  
a Hall effect sensor positioned inside said switch housing; and  
a magnet carriage positioned inside said switch housing, said magnet carriage movable relative to said Hall effect sensor and having a first magnet and a second  
15 magnet, said first magnet and said second magnet positioned with opposing polarities facing said Hall effect sensor,

said Hall effect sensor responsive to the positional displacement of said first and second magnets relative to said Hall effect sensor.

20           8.       The Hall effect switch of claim 7 further comprising a boot seal between said switch housing and said magnet carriage.

- 17 -

9. The Hall effect switch of claim 7 further comprising a return spring for biasing the positional displacement of said magnet carriage.

5 10. The Hall effect switch of claim 7 further comprising a clicker ball and a clicker ball aperture, said clicker ball being displaced from a non-actuated position to an actuated position by the positional displacement of said magnet carriage and thereby emitting a perceivable clicking indication.

10 11. The Hall effect switch of claim 7 wherein said first and second magnets are positioned in contact with each other.

12. The Hall effect switch of claim 7 further comprising at least one additional magnet in said magnet carriage positioned similarly to said first and second magnets.

15

13. A method for contactless switching in a switch housing including a Hall effect sensor and a magnet carriage, said method comprising:

mechanically displacing a magnet carriage having a first magnet and a second magnet, said first magnet and said second magnet positioned with opposite polarities facing a Hall effect sensor;

20

- 18 -

detecting the change in magnetic field due to the displacement of the first and second magnets of said magnet carriage with said Hall effect sensor; and  
actuating said switch based on the change in magnetic field detected by said Hall effect sensor,

5

14. The method of claim 13 further comprising sealing said switch housing by using a boot seal between said switch housing and said magnet carriage.

15. The method of claim 13 further comprising biasing the positional  
10 displacement of said magnet carriage using a return spring.

16. The method of claim 13 further comprising generating a perceivable clicking indication by using a clicker ball and a clicker ball aperture, said clicker ball being displaced from a non-actuated position to an actuated position by the positional  
15 displacement of said magnet carriage.

17. The method of claim 13 wherein said first and second magnets are positioned in contact with each other.

20 18. The method of claim 13 further comprising at least one additional magnet in said magnet carriage positioned similarly to said first and second magnets.